

Leveraging Rapid Alternation of Coulomb Forces from Obtuse Angles for Photovoltaic Life Extension in the Space Domain

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Introduction

Photovoltaic systems, particularly in the space domain, are limited in lifespan due to structural defects which form in photovoltaic substrates over time. These defects are caused both by solar radiation, itself, as well as repeated cycles of heating and cooling. The most common outcome of the use of photovoltaics in an orbital context is that the solar units will continue to function at reduced capacity. Voltage cells, similarly, have a limited life cycle, although there are different fundamental reasons for wear in voltage cells versus photovoltaic cells.

Abstract

In this author's publication of 22 February 2024, it was explained that strategically projected Coulomb Forces from a distance and from a particular combination of angles (ibid.) could be predicted to cause the structure of cubic metals to change from cubic to rhomboid at the molecular level. This could be predicted to have the effect of melting the metal without the application of heat.

Beyond the obviously revolutionary benefits for the manufacturing of metallic products, given this capability, it should be possible dispatch repair craft designed to use such a mechanism with that mechanism pressed directly up against a solar panel, in order that we might liquefy and subsequently allow to re-solidify (a near-instantaneous proposition in this type of system) the substrate in order to restore the smoothness of its surface and returning the PV panel to original or near-original levels of operational efficiency. Given the nature of photovoltaic processes in these types of panels, a rhomboid-inducing Coulomb field, if structured correctly, could actually bring about a level of efficiency greater than that measured at the time of manufacture through conventional means as it would allow for bespoke nanostructures conducive to high conversion efficiency to be artifacted into the substrate and for this particular structuring to be restored time and again during the re-surfacing process.

Although such a technology would need to be built into lithium batteries at the time of manufacture, a repair mechanism operating according to the same principle could be leveraged to restore batteries meant for use in the space domain to original levels of performance through the periodic activation of a comparable "resurfacing process" which would ensure that metallic structures are re-smoothed in-situ, thereby greatly extending the lifespan of the units; perhaps indefinitely.

Conclusion

The application of this technology; first promulgated in 2024; for this use-case would greatly extend the functional life of certain microsystems critical for operations in the space domain. It would be worthwhile to investigate whether a Coulomb Field inducer in the form of a flat panel could be made to conform to an existing solar panel and to use these field effects in order to prompt non-thermal melting of the operational material whereas the intent is to restore the smoothness of the surface at the nano- scale, thereby restoring function.